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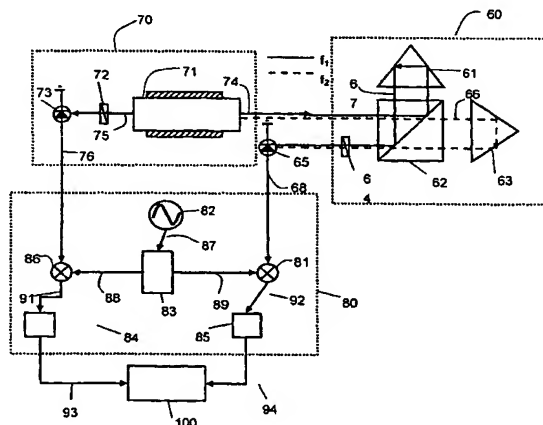
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(54) Title: **HETERODYNE LASER INTERFEROMETER USING HETEROGENEOUS MODE HELIUM-NEON LASER AND SUPER HETERODYNE PHASE MEASURING METHOD**



(57) Abstract: Disclosed are a method and a device for detecting the phase of a moving object using a heterodyne interferometer. A heterogeneous mode helium-neon laser is used in the heterodyne interferometer as a direct light source to increase a measuring speed and a measuring resolution performance as well as minimizing the loss of the light source. Signals, which have only a frequency difference between reference signals or measured signals and arbitrary signals, are extracted from signals which are obtained by multiplying the arbitrary frequency signals by the reference signals or the measured signals. After frequencies of the reference signals and the measured signals are converted, a phase difference of the extracted signals is measured, and a displacement of the moving object is measured. The laser interferometer system of the present invention includes a laser light source part, an optical interferometer, a frequency converter, and a phase measurer. The light source used in the heterodyne interferometer uses output light emitted from a heterogeneous mode helium-neon laser generator, which is stabilized in frequency, and such output light have two frequencies which are at right angles to each other and linearly polarized.